STRUCTURE, FUNCTIONAL PROPERTIES, TISSULAR AND SUB-CELLULAR LOCALIZATION OF TWO NOVEL METALLOPEPTIDASES EXHIBITING A SPECIFICITY FOR BASIC RESIDUES. P. Cohen[1], A. Prat[1], T. Foulon[1], V. Chesneau,[1] A. Pierotti,[1,2] S. Cadel[1] and D. Segretain[3]. [1]Biochimie des signaux régulateurs cellulaires et moléculaires, Université Pierre et Marie Curie, URA 1682 du CNRS, 96 boulevard Raspail, 75006 Paris, France, [2]Caledonian University, City Campus, Cowcaddens Road, Glasgow G40BA, Scotland, United Kingdom, [3]Histochimie, Faculté de Médecine, Université René Descartes, 45 rue des Saints-Pères, 75606 Paris, France.

An endoprotease and an aminopeptidase-B were isolated, characterized and their cDNAs were cloned and sequenced. The first one appears to be a Zn^{2+}-endopeptidase of 1161 amino acid residues with the HFLEH cannonical Zn^{2+}-binding site and an acidic stretch of 71 amino acids containing 80% Glu and Asp. Since it exhibits *in vitro* a marked selectivity for peptide bonds on the N-terminus of R moieties in dibasic stretches, it was called NRD convertase (Nardilysin : E.C.3.4.24.61) and was shown to belong to the pitrilysin family with 35-50% homology with *E. coli* protease III (E.C.3.4.99.44) and insulysin (E.C.3.4.99.45). The aminopeptidase-B component is a 72kDa metallo-exopeptidase which is able to remove Lys and Arg from naphtylamide derivatives and from the N-terminus of a series of peptide substrates. A combination of immunochemistry and *in situ* hybridization studies on rat brain and testis allowed to define the regions of expression of the corresponding genes. They indicated that both NRD convertase and ApB are expressed transiently and exclusively in the germ line at late stages of spermatogenesis. Since electron microscopy examination of immunogold labeled producing tissues allowed a more precise definition of the subcellular localization of both enzymes, new hypothesis on their possible biological role(s) will be discussed.